

Airmid Healthgroup Ltd. Laboratory Test Results for KTIII Air Steriliser



Executive Summary

Controlled testing to evaluate the efficacy of the removal of airborne Bacteriophage MS2, a surrogate for SARS-CoV-2, using a KTIII Medical Grade Air Steriliser.

Testing Facility: Airmid Healthgroup Ltd, Citywest Business Campus, Dublin 24, D24 YH58, Ireland
airmidhealthgroup.com

Accreditation: Airmid Healthgroup is a world leading biomedical research facility and ISO/IEC 17025:2017 accredited testing laboratory, with a purpose built state-of-the-art, ASTM compliant environmental test chamber.

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Test Item: KTIII Air Steriliser with Medical Grade HEPA 13 filter, dual technology ultraviolet germicidal irradiation (UVGI) chamber and activated carbon filter.

Test Material: Bacteriophage MS2 (MS2). Like SARS-CoV-2 coronavirus, MS2 is a single stranded RNA virus (positive-sense). Due to its viability and resistance to disinfection, MS2 is an often used surrogate in air purifier tests and is considered to represent a “worst case scenario”.

Analysis: Samples collected from the test chamber were analysed by plaque assay, which assesses the infectivity of the sampled virus. The concentration of infective MS2 virus is denoted as the number of plaque forming units per cubic metre of air (PFU/m³).

Results: Table 5.1 and Figure 5.1 summarises the MS2 plaque-forming units per cubic meter of air (log₁₀ PFU/m³). This shows a reduction from 8.0 log₁₀ PFU/m³ to 3.8 log₁₀ PFU/m³ in less than 60 minutes.

Table 5.1. Log₁₀ values of the average PFU/m³ for individual active test and inactive control runs, and for the overall average for all active test and inactive control runs

Time (minute)	Control				Test			
	Run 1	Run 2	Run 3	Average (n=3)	Run 1	Run 2	Run 3	Average (n=3)
- 10 to 0	8.0	7.9	8.2	8.1	8.0	7.8	8.0	8.0
+ 05 to 15	8.0	7.9	8.0	7.9	6.4	6.3	6.3	6.3
+ 20 to 30	7.6	7.8	7.6	7.7	4.2	5.8	3.7	5.3
+ 50 to 60	7.6	7.8	7.6	7.6	4.1	3.7	3.7	3.8

MS2 Limit of Detection: 3.66 log₁₀ PFU/m³

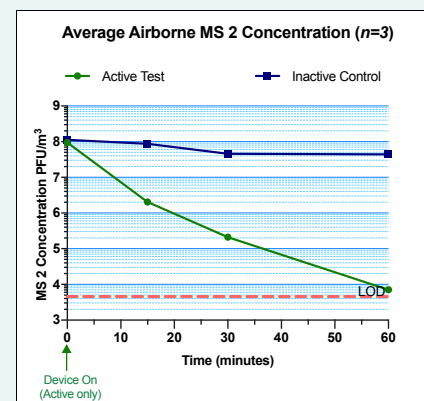


Figure 5.1. Graph outlining the data from Table 5.1 above, which demonstrates the average concentration of airborne MS2 measured throughout the study.

Conclusion: When challenged with airborne SARS-CoV-2 phage MS2, the KTIII reduced the average number of PFU/m³ from 8.0 log₁₀ to 3.8 log₁₀ which would result in a greater than 99.99% reduction of the virus in under 60 minutes